WHAT IS CLAIMED IS:

1. A transmission-and-receiving switching circuit comprising:

a signal input-and-output end to which an antenna is connected;

a transmission circuit connected to the signal input-and-output end through a first switching diode, the transmission circuit configured to output a transmission signal;

a receiving circuit connected to the signal input-and-output end through a second switching diode, the receiving circuit configured to receive a receiving signal; and

inductor elements for feeding bias voltages to the first switching diode and the second switching diode,

wherein the first switching diode and the second switching diode are switched to operating states opposite to each other by the bias voltages, the operating states being on and off;

a first resonant circuit contains a first capacitor element coupled with the inductor element for feeding the first switching diode, the first resonant circuit at least series resonating between the first switching diode and ground; and

a series resonant frequency of the first resonant circuit is about equal to a frequency of a signal other than the transmission signal.

2. The transmission-and-receiving switching circuit of Claim 1, wherein the series resonant frequency is about equal to a frequency of a local oscillation signal in the transmission circuit.

3. The transmission-and-receiving switching circuit of Claim 1, wherein the first resonant circuit is provided between ground and a connection point of the first switching diode and the transmission circuit.

4. The transmission-and-receiving switching circuit of Claim 1, wherein the first resonant circuit is formed of a series-parallel resonant circuit, and a parallel resonant frequency of the series-parallel resonant circuit is about equal to a frequency of the transmission signal.

5. The transmission-and-receiving switching circuit of Claim 1, wherein the first capacitor element and the inductor element for feeding the first switching diode are formed of lumped-constant-type circuit components.

6. The transmission-and-receiving switching circuit of Claim 1, further comprising a second resonant circuit comprising a second capacitor element coupled with the inductor element for feeding the second switching diode for at least series resonating between the second switching diode and ground, wherein a series resonant frequency of the second resonant circuit is about equal to a frequency of a signal

other than the receiving signal.

7. The transmission-and-receiving switching circuit of Claim 6, wherein the second resonant circuit is provided between ground and a connection point of the second switching diode and the receiving circuit.

8. The transmission-and-receiving switching circuit of Claim 6, wherein the second resonant circuit is formed of a second series-parallel resonant circuit, and a parallel resonant frequency of the second series-parallel resonant circuit is about equal to a frequency of the receiving signal.

9. The transmission-and-receiving switching circuit of Claim 6, wherein the second capacitor element and the inductor element for feeding the second switching diode are formed of lumped-constant-type circuit components.

10. A transmission-and-receiving switching circuit comprising:

a pair of signal input-and-output ends, an antenna connected to one of the pair of signal input-and-output ends;

a transmission circuit connected to the one of the pair of signal input-and-output ends through a first switching diode and to the other of the pair of signal input-and-output ends through a second switching diode, the transmission circuit configured to output a transmission signal of a transmission frequency;

a receiving circuit connected to the one of the pair of signal input-and-output ends through a third switching diode and to the other of the pair of signal input-and-output ends through a fourth switching diode, the receiving circuit configured to receive a receiving signal of a receiving frequency;

an inductor element connected between each switching diode and each of a pair of voltage feeding points; and

a first resonant circuit that contains a first capacitor element connected between ground and a first of the inductor elements and a second resonant circuit that contains a second capacitor element connected between ground and a second of the inductor elements;

wherein the first and fourth switching diodes operate in opposite operating states from the second and third switching diodes, and

a series resonant frequency of the first resonant circuit is about equal to a frequency of a signal other than one of the receiving and transmission signals.

11. The transmission-and-receiving switching circuit of Claim 10, wherein the series resonant frequency is about equal to a frequency of a local oscillation signal in one of the receiving and transmission circuits.

12. The transmission-and-receiving switching circuit of Claim 10, wherein a first connection point connects the first switching diode, the second switching diodes and the

transmission circuit, and the first resonant circuit is provided between ground and the first connection point.

13. The transmission-and-receiving switching circuit of Claim 12, wherein a second connection point connects the third switching diode, the fourth switching diode and the receiving circuit, and the second resonant circuit is provided between ground and the second connection point.

14. The transmission-and-receiving switching circuit of Claim 12, wherein a second connection point connects the first switching diode, the third switching diode and a first of the pair of signal input-and-output ends, and the second resonant circuit is provided between ground and the second connection point.

15. The transmission-and-receiving switching circuit of Claim 10, wherein a first connection point connects the third switching diode, the fourth switching diodes and the receiving circuit, and the first resonant circuit is provided between ground and the first connection point.

16. The transmission-and-receiving switching circuit of Claim 15, wherein a second connection point connects the first switching diode, the third switching diode and a first of the pair of signal input-and-output ends, and the second resonant circuit is provided between ground and the second connection point.

17. The transmission-and-receiving switching circuit of Claim 12, wherein the first resonant circuit is formed of a series-parallel resonant circuit, and a parallel resonant frequency of the series-parallel resonant circuit is about equal to the transmission frequency.

18. The transmission-and-receiving switching circuit of Claim 15, wherein the first resonant circuit is formed of a series-parallel resonant circuit, and a parallel resonant frequency of the series-parallel resonant circuit is about equal to the receiving frequency.

19. The transmission-and-receiving switching circuit of Claim 13, wherein the first and second resonant circuits each comprise a series-parallel resonant circuit with a parallel resonant frequency of about equal to the receiving frequency and the transmission frequency, respectively.

20. A method of receiving and transmitting signals, the method comprising:

transmitting a transmission signal to a signal input-and-output end through a first switching diode;

receiving a receiving signal from the signal input-and-output end through a second switching diode;

feeding bias voltages to the first switching diode and the second switching diode;

switching the first switching diode and the second

switching diode to opposing operating states via the bias voltages; and

coupling a first series resonant circuit between the first switching diode and ground, the first series resonant circuit having a first series resonant frequency about equal to a frequency of a signal other than the transmission signal.

21. The method of Claim 20, further comprising forming the first series resonant circuit from an inductor in series with a first capacitor, connecting the first capacitor to ground and the inductor to the first switching diode.

22. The method of Claim 21, further comprising forming a parallel resonant circuit with the first series resonant circuit by connecting a second capacitor in parallel with the inductor, the parallel resonant circuit having a frequency of about equal to a frequency of the transmission signal.

23. The method of Claim 20, further comprising reducing local oscillation signals when transmitting the transmission signal by providing that the first series resonant frequency is about equal to a frequency of the local oscillation signals.

24. The method of Claim 20, further comprising coupling a second resonant circuit between the second switching diode and ground, a second series resonant frequency of the second resonant circuit having a second resonance frequency of about

equal to a frequency of a signal other than the receiving signal.

25. The method of Claim 24, further comprising forming the second series resonant circuit from an inductor in series with a first capacitor, connecting the first capacitor to ground and the inductor to the second switching diode.

26. The method of Claim 25, further comprising forming a parallel resonant circuit with the second series resonant circuit by connecting a second capacitor in parallel with the inductor, the parallel resonant circuit having a frequency of about equal to a frequency of the receiving signal.